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Business and Environmental Sustainability

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Introduction

This paper is about what some have called "the next industrial revolution."[1] My starting assumption is that in the early years of the twenty-first century humanity is faced with a cluster of significant economic, ecological, and ethical challenges. Extreme poverty, exacerbated by a cycle of political repression, war, famine, disease, and natural disasters, confronts hundreds of millions of people on a daily basis. Throughout the world, hundreds of millions of human beings struggle just to get the basic necessities of life: clean water, nutritious food, shelter, health care, education, jobs. Population growth guarantees that these problems will only intensify in the immediate future. Justice and common decency, as well as self-interest, requires that these problems be addressed by those living in the economically developed world. Addressing these challenges will require significant global economic activity, integrated with social and political leadership. However, the earth's biosphere, ultimately the only source for all this economic activity, is already under severe stress from just the type of economic growth that many assume is the solution to these challenges.

These factors will require that business in the twenty-first century be practiced in a way that is *economically* vibrant enough to address the real needs of billions of people, yet *ecologically* informed so that the earth's capacity to support life is not diminished by that activity and *ethically* sensitive enough that the human dignity is not lost or violated in the process.

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To get us to the heart of what I would like to say about the role of business in this, I need to take a number of things as given. First, I will assume that, in fact, the earth's biosphere is under significant threat to its ability to support life. A second assumption[2] is that the present configuration of economic and business activity—the reigning paradigm of business and economics—is incapable of adequately addressing these challenges and, in fact, is partially responsible for causing these problems. The failure of this conventional wisdom to address these challenges revolves around two significantly misguided assumptions. The first is that unqualified economic *growth* is the best means for addressing global poverty and the social problems that accompany it. The second is that business and economics can operate independently of environmental and ethical concerns. I want to argue for an alternative model for business and economics, what is called the "sustainability" model, which can provide better guidance for creating a world in which we can meet the needs to the present generation without jeopardizing the ability of future generations to meet their own equally valid needs.[3]

Underlying the view I wish to sketch is a shift away from the growth-based model of neoclassical economics to a development-based model of ecological economics. The implications of such a shift for business are substantial. If economic growth is the primary goal of the economic system in which business operates (as it is in the neoclassical model), then the social responsibilities of business are fairly narrow. Business ought to pursue profit within the law and within certain minimal moral constraints. Thus, the primary social responsibility of business is economic, with legal and ethical considerations functioning as side-constraints upon this primary goal. Acting in this way is thought to insure that business activity furthers the overall social goal of economic growth, while respecting other social goals that get reflected in the law. But if this economic model is replaced by one shaped by ecological considerations, then the social responsibilities of business shift substantially. On this new model, corporate social responsibility must be assessed on three criteria: economic, ecological, and ethical. These criteria are commonly referred to as the "triple bottom line" or the "three pillars of sustainability."[4]

There is a growing body of work being done in the area of ecological economics. I believe that the business model that I am interested in will co-evolve with this economic literature. I will say little about ecological economics in this paper. There is also a growing body of literature describing

various frameworks for conceptualizing sustainable business, industrial ecology, natural capitalism, and the like. I will say only a few things about these frameworks in this paper.[5]

What I do hope to do in this paper is to offer some broad categories for how we might conceptualize business and business ethics in a sustainable future. What would sustainable business, and sustainable business ethics, involve? I also want to suggest some directions, for both business practitioners and academics, in which future work in this area might proceed. But first, let me say a few things about the very notion of sustainability.

The Sustainability Paradigm

Like the first industrial revolution of the eighteenth and nineteenth centuries, the new industrial revolution will grow out of, and have implications for, our personal, social, cultural, business, economic, and political life. That first revolution, originating primarily in Western Europe and the United States, was greatly helped by scientific advances in physics, chemistry, and biology, and technological advances in bringing power-driven machinery to transportation, manufacturing, and agriculture. That revolution was also accelerated by social, ecological, and economic factors. Increased populations, displaced populations (including slaves) and increased mobility of those populations, provided cheap and plentiful workers for factories, and a growing consumer base for products. The oak forests which once covered much of the northern European countryside had been decimated for farmland, fuel, and timber, creating both an incentive and an opportunity for coal power and imported timber and manufactured materials. Famine, caused by both political repression and crop failures, also helped depopulate some countryside and create large pools of emigrants to supply cheap labor for foreign factories. Wars created incentives for new technologies that soon translated for commercial purposes and, once ended, supplied even more cheap labor for industry. Advances in transportation, primarily rail and shipping, created unprecedented global economic connections.

Similar factors suggest the possibility for a new emerging revolution. Scientific and technological advances in transportation, energy, biotechnology, and electronics provide significant resources for global economic development. Globalization, and all that this implies for culture, politics, and economics, suggests that we are at another historical turning point. Poverty, population growth, especially in the world's poorest regions, mobile and displaced populations, and worldwide ecological threats, provide

us with the motivation to create a more just and environmentally sound economic model.

The concept of sustainability has grown out of the recognition that *economic* development on a global level cannot be separated from questions of social justice and from ecological stability. Part of this new reality is captured in the common phrase: "poverty anywhere is a threat to prosperity everywhere."

The new worldview emerging as an alternative to the reigning paradigm of economic growth and free markets holds that long-term sustainability is the criterion of successful economic and social development. Sustainability, in this sense, is understood to involve three dimensions: economic, ecological, and ethical—the *three pillars of sustainability*. Business, within this conceptualization, is no longer understood as having a primary economic goal, with ethical and environmental consideration functioning as side-constraints. Business has three equally compelling goals that must be balanced over the long-term.

Claiming that economic growth is part of the problem is not to envision a future of economic depression or stagnation. Without significant economic activity, human suffering will get worse, not better. Nor is it to imagine the creation of romantic, bucolic agricultural communities. There are ten urban areas in the world with populations greater than fifteen million, and another fifteen with populations greater than ten million. The people living in each of these urban areas are not likely soon to voluntarily emigrate out into the countryside to start peaceful agricultural communes. There are reasons, after all, why populations have emigrated from the countryside into urban centers. Growth itself is not bad—some things will need to grow to address these challenges. Unqualified and misdirected economic growth is the problem.

The alternative to economic growth is economic development, not economic stagnation. Following the economist Herman Daly, we should distinguish between economic "growth" and economic "development."[6] Growth means getting bigger; development means getting better. Not all growth is good, as our knowledge of cancer would demonstrate. Likewise, not all economic activity is good. Standard models of economic growth, GDP for example, treat any economic activity as a good thing. On this model, money spent cleaning up after an environmental disaster is a good thing. Buying a $60 thousand SUV contributes more to the economy, and therefore to society, than purchasing a $20 thousand hybrid car. Bulldozing

a pristine woodland and building tract homes and strip malls is the type of economic "development" government should encourage. But true economic *development* must encourage targeted economic growth in those areas in which human well-being can be promoted in ecologically sustainable ways and a decrease of those economic activities that degrade the earth's biosphere.

Certainly one area in which future work must be done by ethicists concerns the value dimensions of this concept of "development." As we talk about sustainable business, sustainable consumption, sustainable production, sustainable marketing, and the like, we will need an articulation and defense of the sense in which this is "better" rather than just "bigger," "more," or "different." For example, can we talk about sustainable agriculture without offering an account of good food? Can we offer an account of sustainable production, without offering an account of good products? Can we offer an account of sustainable communities without offering an account of the good life? Will liberal ethics and its reliance upon formal value concepts such as *happiness, rights, liberty,* and *equality*, be sufficient for articulating the qualitative dimensions of human economic *development*?

Sustainability: Two Caveats

Finally, before turning to a closer look at sustainable business it is worthwhile to issue two caveats concerning the very notion of sustainability. First, we should be clear that while the concept of sustainability can offer a pragmatic guide for future business directions, it must not be so broadly conceived that just any practice or any business can become sustainable. When we hear talk about "sustainability," we should always be prepared to ask "*What* is being sustained?"

The language of sustainability has proven quite popular, even among those who otherwise might not be identified as environmentalists. This should give us pause. It seems clear that sustainability is often assumed to mean "sustaining the present business patterns and present levels of consumption." In this sense, defending a model of sustainable living means simply sustaining the status quo. Some have even spoken of "sustainable growth" which, as Herman Daly points out, is not possible.[7] To the degree that present consumption patterns, particularly those found in consumer-driven industrial economies, are causing environmental deterioration, the status quo is exactly what we need to change. To the degree that certain products or industries are destructive of the biosphere's ability to support

life, they will need to change. The type of economic growth that characterizes present economic models is not sustainable.

Sustainable living and sustainable development will require a changed economy and changed society. There may well be industries and social practices that are incompatible with sustainable development. Sustainability will also require substantially closing the economic gap between wealthy industrialized countries and the poor developing world. We need to be vigilant and not use sustainable development simply as a fashionable way to talk about continued economic growth, consumption, or industrialism. As we learned from the green marketing campaigns of recent years, it will be easy for benign concepts to be co-opted.

Second, the concept of "sustainability" most accurately applies only at more general and systemic levels. An individual firm, for example, may adopt the most ecologically benign and safe practices, but if the economic system or biosphere in which it is embedded collapses, the firm itself will not be sustained. On the other hand, an ecologically destructive practice, such as the creation of nuclear wastes or the destruction of a wetland, can be sustained as long as it occurs as an isolated incident within an otherwise healthy biosphere. An individual business or a particular practice is neither sustainable nor unsustainable in isolation from wider economic and ecological systems. "Sustainability" truly applies only to practices that have an impact, positive or negative, on the broader biosphere. Nevertheless, for convenience sake, we can talk about a sustainable business as a shorthand way of describing practices which, if generalized over an industry or economy, would safeguard the biosphere.

The Business Case for Sustainability

The first topic I would like to address concerns the philosophical implications of the "three pillars" and "triple bottom line" frameworks. The dominant model of economics and business tends to understand the goals of profit and environmental or ethical responsibility as exclusive dualisms. Managers must choose between profit and social responsibility, between their financial duties to their business and their environmental or ethical duties. Cast in these terms, it becomes easy to dismiss both ethical and environmental responsibilities. Pursuing ethical and environmental goals beyond those required by law or minimal moral duties threatens profit, profit is necessary to remain in operation, therefore asking business to

pursue environmental goals is unreasonably asking business to jeopardize its very existence.

Both history and ethics can encourage us to think of environmentalism and business in terms of a zero-sum game: environmentally sustainable decision comes at a cost of profitability; pursuing profits requires business managers to forgo environmental responsibility. Historically, most early environmental legislation followed this regulation-and-compliance model. Government passes laws that restrict the freedom of business, and business is forced to comply with such regulation. There is also a long ethical tradition which makes a similar assumption: ethical responsibilities conflict with self-interest. To be ethical, one must forgo self-interest; if one is pursuing self-interest, one is less than ethically praiseworthy. But the possibility exists that what is right in terms of sustainability, may also be right in terms of business performance. Part of the three pillars of sustainability, after all, is economic sustainability. If we expect business to address the significant global economic and environmental challenges of the twenty-first century, we need vibrant and stable, i.e., sustainable, businesses.

Sustainability as the purpose of business provides guidance that creative and entrepreneurial business leaders can follow. As we begin to consider how business might be restructured in order to meet its environmental responsibilities, it is worth emphasizing this point. We should not underestimate the range of managerial discretion. Business executives and managers, rightfully, enjoy a wide range of decision-making discretion. There are many ways to pursue and attain profitability. We must move away from the view of environmental responsibilities as side-constraints on "the" pursuit of profit, as if there is only one way to pursue profits and ethical responsibilities are a barrier to that. Rather, we must recognize that some avenues to profitability can be environmentally risky, others environmentally prudent and sensible.

Barring a catastrophe, society will survive and businesses must play a role in that survival. Models of sustainable business envision a central role for business in a sustainable future. It will be the businesses of the next industrial revolution that meet the real needs of the billions of people living in that sustainable future. The businesses that survive in this sustainable world will be businesses that anticipate this change and adapt to it on their own terms.

The models of sustainable business being developed share common themes that give some indication where these changes will occur. Business

products and operations should be modeled on biological processes. "Closed-loop" manufacturing, biomimicry, elimination of wastes and discovering ways to treat wastes as a resource are different ways of emphasizing this point. One implication of these proposals is that new business opportunities exist for realizing new business synergies when the wastes of one firm become the resources of others. Another implication is that great cost savings can be found by looking to reduce and eliminate wastes.

Yet another theme shared in these models concerns the reduction in flows through the production process. Improved efficiencies, dematerialization, reduction of energy use, and a shift to sustainable energy sources will improve industry's health much as improved blood circulation improves a person's health.

These shared themes, of course, have economic as well as ecological and ethical implications. A strong and overwhelming environmental case can be made for the sustainable model, but is there a "business case" to be made for sustainable business? Before making this case, we need to be clear about what is involved.

Some critics would see the attempt to make a business case for sustainability as a capitulation to business or as a sign that sustainability has been co-opted by business interests. If the business case involves an attempt to convince any and every business that they can flourish within a sustainable economy, that might be true. But as mentioned previously, not every contemporary business, product, or industry will or should survive into a sustainable future. The question of sustainable business is as much about what business will become in the future as it is about how each and every business can become sustainable.

Some philosophers might also be skeptical about a business case for sustainability. Self-interest, according to some, conflicts with moral considerations and if one acts out of self-interest one is, by that fact, not acting morally. But with a more robust understanding of the "self" of self-interest, one that has more in common with Platonic ethics than Kantian moral philosophy, this conflict is more apparent than real. Were business to fulfill its true purpose in a sustainable economy, doing the right thing ethically coincides with doing what is in the self-interest of business.

With that said, some persuasive reasons can be offered to the business community for why it should move in the direction of sustainability. First, of course, are many potential cost savings that can follow from eliminating

wastes, reducing operating expenses, and striving towards eco-efficiency. Waste is a bad thing, both ecologically and financially. A company that reduces and eliminates its wastes will reduce its costs. A company that finds ways to turn waste into a new resource will increase its revenues from already existing assets. If the by-products of the production process represent a cost for disposal, then a creative business will search for ways to turn them into revenues.

One practical side of cost savings can be seen with the example of Interface, Inc. The movement towards sustainability initiated by CEO Ray Anderson in the early 1990s did result in increased efficiencies and reduced costs. In the late 1990s however, Interface entered into a three-year period of decreasing sales and lost revenues. Interface's primary market sells carpeting to office and commercial buildings. During the economic recession of these years, office and commercial expansion declined and Interface's business suffered as a result. However, Interface credits the increased efficiencies and reduced costs of their sustainability initiatives with playing a major role in helping to weather the economic downturn. Every business experiences challenging economic periods and, as this Interface example demonstrates, cost savings associated with the move towards sustainability can provide a cushion against economic downturns.

Sustainability also creates opportunities to decrease capital costs in building or remodeling facilities. Buildings designed from the start to be energy efficient, with bright, airy, and well-ventilated space will decrease costs and improve efficiencies over the long term. McDonough and Braungart's work with a new manufacturing plant for Herman Miller, a large office furniture maker, is a case in point. Herman Miller has a long tradition of socially responsible practices and has worked with McDonough and Braungart's cradle-to-cradle design protocol to develop truly sustainable furniture products. But in the early 1990s, Herman Miller also worked with McDonough to design and build their new manufacturing plant in Michigan. The new design has paid dividends in the form of lower energy costs and increased worker productivity. Herman Miller has also been instrumental in creating the United States Green Building Council (USGBC) in 1993. The Council describes itself as "the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work."[8]

Sustainable companies can also acquire competitive advantages. Not only would increased savings, revenues, and efficiencies place a company in a better position relative to its competitors, but sustainable companies are poised to take advantage of "green" markets. Sustainable practices should not be only a marketing tool, of course, but one should not underestimate the growing consumer market for sustainable and environmentally beneficial products and services. Another aspect of the competitive advantages of sustainability lies in the labor market. Herman Miller discovered that their green building became very popular with employees. Improved morale, increased employee loyalty and, simply, healthier and more attractive working conditions for employees were added benefits of McDonough's sustainable design principles.

Business should recognize the real possibility of future government regulation that may well require steps towards sustainability. The companies already involved in sustainable practices are likely to play leadership roles in fashioning future standards. In the past, many companies waited until environmental regulations coerced them into action. At that point, many were overwhelmed by the costs of clean-up and compensation. Companies that wait and deal with sustainability as a compliance issue take similar risks.

Finally, avoiding future legal liability provides another business reason for the move towards sustainability. There is no better means for managing both regulatory and legal risks than by being proactive in taking steps to prevent problems from occurring. The legal concepts of negligence and forseeability are just waiting to be exploited in holding business liable for the entire life-cycle of its products.

Business Responsibilities in a Sustainable Economy

In this section, I would like to sketch a range of ethical responsibilities facing business during the transition to a sustainable economy. For convenience sake, I will distinguish between responsibilities concerning sustainable consumption and responsibilities concerning sustainable production.

Sustainable Consumption

As business begins to address sustainability concerns, it might seem that consumerism lies beyond what we can reasonably ask business to address. Expecting business to take responsibility, or holding business liable, for the consequences of consumer choice seems unreasonable and unfair. First,

what would seem to be the primary alternatives to consumerism—movements such as voluntary simplicity and virtues like frugality and thrift—run counter to business's interests in selling more products. If consumers stop consuming, business loses. If consumers consume less, the economy enters a recession and everyone suffers. Thus, it would seem that asking business to discourage consumption is asking it to put its own survival in jeopardy. Second, consumer demand—the motivating force behind consumerism—seems beyond the scope of business's ethical responsibilities. Business responds to the market after all, it doesn't create the market. If consumers make environmentally bad decisions, the fault should lie with individual consumers not with business.

Nevertheless, I would like to suggest that business has more of a responsibility for consumer behavior and consumption patterns than might first appear. A sustainable business must address the issue of consumption head-on and take responsibility both for the role it plays in shaping consumer demand, and for the choices available to fill that demand. Further, sustainable consumerism can present business with as many opportunities as barriers and managers who miss such opportunities fail all their stakeholders.

Here, again, I need to assume some things for which I argue elsewhere.[9] I believe that consumerism as it exists among most advanced economies (and among a growing elite within less developed economies) is a major contributor to the daunting ecological and ethical challenges of the twenty-first century. This consumerist class consumes too much, it consumes the wrong things, and it consumes in the wrong ways.

Given these starting points, I want to suggest three areas in which both business practitioners and business ethicists can contribute towards sustainable consumption: (1) we must examine closely the role of business in shaping consumer demand through marketing and advertising; (2) we must examine the role of business in creating and contributing to the structural features of our economy that encourage over-consumption; (3) we need more of an emphasis on sustainable products that are created to meet that consumerist demand.

If unsustainable consumption is the result simply of autonomously chosen individual desires, then perhaps business has little responsibility for it. But there is good reason to think that there are other factors involved as well, factors that business can address. Clearly, causal explanations for shopping and consumption are many and varied. But two particular topics

are relevant for evaluating the role that business plays in this. First, is the long-debated issue of consumer autonomy. One explanation for why we consume as we do rests with the influence of mass marketing and advertising. Because business is responsible for influencing consumer choice, business is responsible when those choices prove problematic. The second topic concerns certain structural features of our economy. These structural features place individuals in a position in which consumption, and over-consumption, is much more rational that it otherwise would be.

Patrick Murphy's paper on Sustainable Marketing is a very welcomed introduction to the field of sustainable marketing, a field that I think will grow significantly in the future.[10] As Murphy suggests, there are some very creative and hopeful developments happening within sustainable marketing. I would like to call attention to only two aspects of marketing for a sustainable future. Let us turn first to the topic of consumer autonomy.

Conventional wisdom teaches us about consumer sovereignty and that supply is a function of demand. Critics claim that consumers are far from sovereign and in control of the marketplace. At one extreme of this debate is the claim that business, through its marketing practices, controls consumer behavior. At the other extreme is the view that business simply responds to pre-existing and independent consumer demand. Surely both extremes are overstated. Human behavior in general is too complex a phenomenon to be controlled by marketing in any straightforward sense. But just as unlikely is the claim that business would spend billions of dollars each year on marketing if it did not have measurable results in changed consumer behavior.

The consumer autonomy debate is complex and well-developed. A full review of that debate is beyond the scope of this essay. But, several points are worth mentioning. First, consumers cannot demand what doesn't exist and what they do not know about. Entrepreneurial businesses often identify consumer needs and desires even before consumers themselves can. They can also identify unmet needs and values that are not addressed in the marketplace. As the personal computer industry so clearly demonstrated, innovative products are very capable of creating their own demand. Few people in the 1970s, both among consumers and industry leaders such as IBM, could even imagine the need for a household computer. Suggesting that Apple Computer simply responded to consumer demand and had no role in creating that demand, is to seriously misunderstand history.

Second, one of the most common counter-arguments to the claim that marketing can influence consumer behavior relies on the failure rates of new products. Estimates vary, but the standard claim is that a very high percentage of new products fail. If marketing can control consumer behavior, so this argument goes, then heavily marketed new products would not fail at such high rates. Since they do, marketing cannot control consumer behavior. But new products failure rates also provide a counter-argument to those who defend consumer sovereignty. If the consumer truly were sovereign, and if business simply responded to consumer demand, then there should be few if any new products that failed. After all, if production responds to demand, only those products for which a market exists would be produced. A high failure rate of new products suggests that business is producing first and trying to find a market afterwards. This, in turn, suggests that many businesses believe that consumer behavior can be influenced by what happens after production.

The second aspect of the explanation of contemporary consumer culture shifts the focus away from the decisions of individuals and looks instead to certain structural features of the society and economy. By "structural feature," I mean those social arrangements, expectations, and norms that provide a context in which individual decisions are made. Our individual choices are shaped to a large degree by how society is arranged. We can only choose from available options, and the options available to consumers are greatly shaped by business and economics. Certain structural features of the present business and economic context can make a choice that is individually rational result in a socially irrational outcome.

In her analysis of why we consume, economist Juliet Shor argues that there are three important structural features of the modern economy that encourage consumers to consume in unsustainable ways.[11] First, Shor points to a "cycle of work and spend" that encourages most individuals to continue working and spending beyond the level that, in some deeper sense, they would prefer. Second, Shor argues that there is a strong "ecological bias" within the economy that discounts the true ecological costs of consumerism. Finally, Shor points to various social meanings given to consumption, particularly "consumption competitions." Each of these structural features encourage individuals to make decisions that lead to overconsumption and its attendant environmental, economic, and ethical difficulties. I want to suggest that business has a role to play in this, especially in respect to the first and third of Shor's structural features.

The conventional wisdom concerning work suggests that market forces tend towards an equilibrium in which individuals balance their desires for income-producing work and leisure. But, present work structures prevent individuals from cutting back work to attain their leisure goals. Such benefits as health insurance, pension, and career mobility and promotion typically are not available to part-time workers. Employers have strong incentives, from tax incentives to the costs of employee benefits, to encourage present workers to work longer hours rather than hiring additional workers. These structural features make it "rational" for individuals to worker longer hours than they would prefer, which means that workers have less time to enjoy non-work leisure activities. Further, since they are working longer hours and therefore making more money, yet have less time available for leisure, greater and greater consumption becomes one of the few ways open for an individual to find rewards for their overworked life. In part because of longer work hours, people feel that they deserve extra, and spend the added income on more and more frills. Frills that, perhaps, they don't "really want and value" but which serve as substitutes for other values. The major alternative to this work and spend cycle is to work and spend less. But this option is often unavailable, not the least because only full-time jobs carry health and insurance benefits that would be unaffordable on part-time salaries.

Thus, structural features of the workplace create a cycle of work and spend, a cycle that leads to over-consumption. Businesses have opportunities to change the structure of our working as well as our consuming lives. Here we see opportunities with HR offices to contribute to a sustainable future. Health and other benefits for part-time workers, flexible benefit packages in which workers can trade-off pay and other benefits for more leisure time, and job-sharing opportunities can help workers escape the cycle of work and spend.

Shor's final feature points to the social meanings of consumption as a major factor in explaining why we consume as we do. Social scientists from Thorstein Veblin to the present have described the many roles that consumption plays in establishing our self-image and our social status and identity. In many ways, we are what we own. We shop and buy for entertainment, for therapy, for self-esteem, for status. We have expectations that tell us we can have it all, and we deserve it now. Our mailboxes are flooded with offers for credit cards and retailers offer everyone, including those with bad credit history, easy credit. In a context where positive social meanings

are attached to consumption, an ordinarily rational individual is lead to act in irrational ways by consuming more than is reasonable.

Business, I believe, has responsibilities derived from the social meaning of consumption. Consumers often buy products for their social meaning, a meaning in part created and encouraged by marketing. Again, contemporary marketing is faced with a choice of what meaning gets conveyed by their marketing campaigns. Let us remember a quote from Theodore Levitt. "The purpose of business is to create and keep a customer." How can business create customers? Two well-known examples can help us understand this claim: GM's marketing of a wide range of automobiles in the mid-twentieth century, and the marketing of home computers in the late twentieth century. Let us look briefly at only the second of these examples.

Consider the creation of the home computing market that exploded in the 1980s and 1990s. As a student in the 1970s, I typed papers on a Smith-Corona manual typewriter. As a young faculty member in the 1980s, I graduated to an IBM electric. At that time, I could not even imagine what I would do with a computer, let alone think I could ever afford one. If Apple Computer and IBM had waited for consumer demand to direct their business, we would all still be typing on electric typewriters, paying bills my mail, and standing in lines in stores and libraries. There simply was no demand for computers, software, MP3 players, video games, on-line banking, virus protection software, search engines, and cable modems in 1980. By 2000, these and other high-tech products and services were driving an unprecedented economic boom.

I suggest that we may be standing at a similar threshold. Consumers are not demanding more sustainable products and services because, like the consumers of 1980, most people have no idea what such a world would look like and what they will need to flourish in a sustainable future. Creative businesses and entrepreneurial individuals will not wait for consumer demand to magically appear. Sustainable products, supported by creative and imaginative marketing, can create their own demand if business is daring enough to try. The social meaning of consumerism is the product of social forces including commercial marketing and advertising. There is no reason to believe that this meaning cannot be shifted towards a more sustainable consumer lifestyle.

The third aspect of the responsibility of business for sustainable consumption: the production of sustainable products. Perhaps most importantly

and most directly, businesses ought to produce sustainable goods and services. If consumers over-consume on environmental, social justice, and self-interested grounds, then sustainable products must diminish these harmful consequences. If the food we eat, the homes we live in, the energy we use, the carpets we walk on, are produced in sustainable ways, then the harmful effects of consuming them are greatly reduced. This topic will be examined in more detail in the next section.

Sustainable Products and Production

Let us turn now from the consumer side of the economic equation to the production side. Conventional economic wisdom would place much of the responsibility for products with the consumers who demand them. Supply, we are told, is a function of demand. Thus, from this perspective, the appearance of sustainable products will have to wait for consumer demand or government mandates. But there are good reasons for rejecting this view.

First, as the previous section pointed out, it is a mistake to treat business as a passive spectator responding to, rather than creating and shaping, consumer demand. Consumers are able to demand only what they know about and, to a large extent, only what is available in the marketplace. In 1970 consumers couldn't demand an IBM selectric, in 1980 they couldn't demand a personal computer, in 1990 they couldn't demand an efficient search engine, in 2000 they could not demand an I-POD or Viagra. Business clearly plays an active role in creating both the information consumers use in making demands, and the products available to full those demands. Further, consumer demand is most often generic; consumers want a car, or even more generally transportation, not necessarily a Ford Taurus or an internal combustion engine. Consumers desire headache relief, not necessarily acetaminophen or Tylenol. Consumers demand convenient food, not necessary a fast-food restaurant in a strip-mall. Business thus has options for determining how to satisfy consumer demand and has the ability to help shape that demand.

Second, even if we accept the conventional view that consumers bear primary responsibility for sustainable products, business would not be able to escape significant ethical responsibility for such products. Independent of products themselves is the process by which those goods and services are produced and delivered. Business has wide discretion regarding how their products get designed, manufactured, delivered, and sold. The production process itself creates a challenge, opportunity, and responsibility for creating

a sustainable business. Even when consumers demand a specific product, how that product gets designed and manufactured, the working conditions of the people who make it, the resources that go into production, the wastes that are left behind, how the product is transported and retailed are all areas in which business can move towards sustainability.

Third, businesses themselves are consumers relying on other businesses in their supply-chain for a wide range of products for their own operations. Every business is a consumer and must take responsibility for demanding sustainable products from its suppliers. Business cannot disavow responsibility for sustainable products by allocating that duty to consumers without taking on the same responsibility for itself when it acts as a consumer in purchasing products from other businesses. In recent years business has been held accountable for their supply-chain activities concerning sweatshop working conditions and genetically modified organisms. We have every reason to think that a similar approach will be taken concerning supply-chain responsibility for sustainable products

We can think about the responsibilities of sustainable production in terms of the two endpoints of the production process: the wastes and pollution that comes out of the process, and the materials and energy that go into the production process.

I won't say much today about the wastes and by-products of the production process. History is a good guide for thinking about business responsibility and liability for the harms caused by the wastes and pollution of production. I believe that society already is moving in the direction of holding business strictly liable for any harms caused by the by-products and wastes of the production process. Many of the very same factors that lead to changes in the regulation of pollution are present today regarding more general sustainability and ecological concerns.

If pollution and waste lie at one side of the production process, resources and materials that go into products lie on the other. Conventional wisdom, represented by Julian Simon's claim that resources are infinite, denies that there is a problem with the supply of resources.[12] What is identified as the *weak sustainability thesis* holds that as long as substitutes exist, any product is sustainable. If this were true, then business would have no responsibility for creating sustainable products. But, to the degree that this is not true, and to the degree that business can foresee the harmful consequences of creating unsustainable products, business does have a responsibility to anticipate and prevent problems by designing and creating sustainable products.

Three trends in production that are likely to follow from this are worth mentioning. First, business should be expected to take responsibility throughout the entire life-cycle of its products. A process called *life-cycle management* entails business accepting stewardship and managing their products throughout their entire life cycle, including a "take-back" commitment. Second, the liability of business for the materials used in products is likely to result in a movement towards dematerialization. Third, business should anticipate greater responsibility for the type of energy used in its production process.

The concept of life-cycle responsibility holds that business should be responsible for, can be held liable for any harms caused by, a product throughout its entire life-cycle. An ethical case can be made for the claim that when a business chooses to manufacture a product and bring it into the marketplace, it assumes a responsibility for that product that cannot be relinquished simply because someone else has purchased it. The implication is that a business that creates a product must take responsibility for managing its entire life.[13]

Life-cycle management is a tool that has its roots in pollution prevention strategies. Once business recognized that it would be held liable for harms caused downstream by its pollutants, an incentive was created to prevent the harms by reducing pollution upstream at its sources. Life-cycle management is most easily done within firms that are vertically integrated. The very concept of vertical integration, familiar throughout the business management literature, demonstrates that many businesses already do control much of the life-cycle of products. Life-cycle responsibility simply draws out the ethical implications of this fact and acknowledges that where business exercises control, it bears responsibility. I would suggest this is another direction in which future ethics research should move.

The ethics of products liability law offers supporting rationales for such changes. First, business should not assume that it foregoes responsibility whenever it sells a product. As witnessed in the development of products liability law in such cases as asbestos and DES, liability for harmful products is not transferred to a purchaser when the product itself is sold. Second, the negligence standard has always included an element of foreseeability. The law holds individuals and businesses liable for harms that a reasonable person could have foreseen occurring as a result of one's actions. Growing awareness of the ecological and health harms caused by materials used in products virtually guarantees that future businesses will be judged negligent for failing to take steps to prevent easily foreseeable harms.

A parallel can be made between twentieth century products liability law and twenty-first century sustainability requirements. Designing, manufacturing and selling a product today without considering the ecological costs involved throughout its entire life-cycle is like designing, manufacturing, and selling a product in the past without considering its safety and health costs. As businesses in many localities throughout the United States have discovered, harmful and toxic products have a way of enduring. From dramatic cases such as Love Canal and Superfund sites to local landfills, governments at all levels are dealing with problems left behind by past business decisions. Failing to take steps now to prevent these harms will make it likely that a business will be found negligent in the future, even if the harms occur late in or even after the useful life expectancy of the product.

As part of this life-cycle responsibility, business must begin a process of "dematerialization." Industrial ecologists are looking to dematerialization as an important step in the direction of sustainability. Dematerialization is a process of reducing the material used required for any given product or service. If we start with a standard economic understanding of the value of goods and service in terms of consumer satisfaction, dematerialization is the process of decreasing the amount of material resources that are required to produce a set unit of satisfaction. Dematerialization would aim to decrease both the amount and the rate at which material resources are used.

Business has tremendous opportunities to use dematerialization as a cost cutting and marketing strategy. Dematerialization can involve a wide range of actions, including reducing product size, weight, the amount of packaging, and increasing product life and range of uses. The information technology industry is a model for dematerialization as email replaces physical mail, computers get faster and smaller, and computing services such as printing, fax, copying, and scanning get incorporated into single machines.[14] Hewlett-Packard, for example, is an industry leader in developing opportunities by which information technology creates less demand for physical products. The automobile industry has decreased the average weight of cars, despite the increased popularity of SUVs, by over thirty percent during the last three decades of the twentieth century. The evolution of the music industry from vinyl records to eight-track tapes to cassettes tapes to CDs to digital players is another perfect example of this dematerialization process.

Dematerialization can also involve such practices as reduced fertilizer and pesticide use in agriculture. Many farmers now use global positioning satellite systems to identify more precisely crop areas in need of irrigation or fertilizers, thus using these resources only where and when necessary. Sensors which shut off appliances when not in use, timers aimed at reducing electricity usage, and hybrid technologies in automobiles which shift to battery power when gasoline power is inefficient, would also all be part of a movement towards dematerialization.

Besides materials, energy is the other major factor that goes into the production process. Unquestionably, energy use is at the heart of sustainable business practice. Global energy use at present, with its heavy reliance on fossil fuels and nuclear power, is a major cause of ecological damage. Few believe that fossil fuels and nuclear power are a part of a long-term sustainable energy policy. At best, these energy sources will require significant safeguards and technological improvements to be a part of a transition towards sustainability. Long-term, they will need to be replaced as sources for the energy business requires.[15]

Only solar energy provides new energy input into the earth's biosphere. Solar energy, directly in the form of heat energy absorbed through solar panels or indirectly through wind energy, is the most sustainable long-term energy source. Fuel cells, powered by hydrogen produced through solar and wind power, hold great promise for localized distributed electric power generation. Geothermal, tidal, and some hydro-powered energy sources also have long-term potential. Until such energy sources are more readily available, we might have to rely on technologies to create cleaner and more benign uses of fossil fuels. Hybrid electric and internal combustion engines for automobiles, ultra-clean sulfur-free diesel fuel for truck and heavy machinery, coal gasification, coal-to-liquid, and coal-to-gas technologies can decrease pollution from otherwise unsustainable fossil fuels.

Supply-Chain Responsibility

A third aspect of the production process that certainly will get more attention in the future concerns the responsibility of business for the actions of its supply chain and entire distribution channels. In recent years, public attention has focused on the responsibility of business for the actions of their supply-chain particularly concerning two issues. Food and agricultural

businesses have been challenged concerning the presence of genetically-modified organisms in food supply, and retail and textile industries have been challenged regarding sweatshop working conditions in their supply-chain. In both situations the initial reply of business was to deny responsibility for the actions of their suppliers. In both situations that defense quickly collapsed in the face of public pressure. A strong ethical case can be made for the claim that businesses can be held responsible for the practices of their suppliers.

Ordinarily, we do not hold a person responsible for the actions of someone else. Assuming that the other person is an autonomous agent, we believe that each person is responsible for their own actions. But this is not always the case. For example, we hold parents responsible for the actions of their children. Thus, the ethical and philosophical challenge is to determine exactly when and under what conditions doing so is reasonable.

While it is easy to think of consumers solely in terms of individual human beings, it would be a mistake to do so. In common situations, we think of a consumer as the person who walks into a big-box retail outlet, an automobile showroom, or who stands at the gas pump re-fueling a private car. But as the case of such giant retailers as Wal-Mart has so clearly demonstrated in recent years, retail businesses exercise tremendous control and influence over both their suppliers and the individual consumers who ostensibly make demands on them. If we hold individual consumers responsible for the choices they make in the marketplace, as conventional economic wisdom would have us do, then we must hold individual businesses equally responsible for the choices they make in the wholesale and supply-chain marketplace.

There is a legal parallel to the idea that a business should be held responsible for the actions of its suppliers. The doctrine of *respondeat superior*, Latin for "let the master answer," holds a principal (e.g., an employer) responsible for the actions of an agent (e.g., an employee) when that agent is acting in the ordinary course of his/her duties to the principal.[7] Thus, in the standard example, an employer can be held liable for damages caused by an accident involving an employee driving the company car on company business.

The justification for doing what might otherwise be considered unfair is that the agent is acting on the principal's behalf, at the principal's direction, and that the principal has direct influence over the agent's actions. Thus, if someone is doing something for you, at your direction, and under

your influence, then you must take at least some responsibility for their actions. Most of the ethical rationale for the responsibility of business for the actions of its suppliers stems from two of these conditions: suppliers often act at the direction of business, and business often exercises significant influence over the actions of its suppliers. These two factors create a strong case for claiming considerable business responsibility for the creation of sustainable products.

Consider an example cited by McDonough and Braungart. DesignTex is a United States company that specializes in the design of commercial fabrics. Beginning in the 1990s, DesignTex executives began looking for ways to create more environmentally friendly fabrics, recognizing that some of the dyes and synthetic materials used to manufacture their fabrics might be environmentally harmful. DesignTex worked with dozens of mills throughout the world to manufacture their products and began soliciting advice and samples from their suppliers in the hope of finding a more sustainable product. At the beginning, no textile mills had the type of sustainable product DesignTex sought.

At the same time, one of their suppliers, the Swiss firm Rohner Textil, was experiencing its own environmental problems. Some of the wastes from Rohner's mill had been classified as toxic by local environmental authorities and Rohner was under a legal mandate to clean up its effluents. Textile manufacturing involves dyes, bleaches, glues, plastics, and a variety of chemicals. Synthetic fibers were manufactured from petrochemicals, and even natural fibers such as cotton and wool was found to contain traces of pesticides. Rohner faced major challenges disposing of the by-products of its manufacturing. Thus, DesignTex's marketplace demands created the incentive and opportunity for Rohner to create a sustainable fabric.

Both firms worked with McDonough and Braungart to design and develop a fabric that would be ecologically sustainable yet still meet the performance and aesthetic demands of the market. They soon encountered a familiar difficulty: there was no market for safe and ecologically benign dyes that they could turn to for supplies. DesignTex and Rohner wanted to purchase sustainable products, but nobody had them to sell. Dye manufacturers were unwilling to disclose the ingredients in their products and were suspicious of any request to analyze and evaluate them on environmental grounds.

New Directions for Sustainable Business

In this final section I will sketch two directions which my crystal ball suggests sustainable business ethics will be headed. First, I believe that each of the operational or functional areas of business will move in the direction of sustainability. Patrick Murphy's paper suggests that marketing is already headed in this direction. Environmental audits, "triple bottom line" accounting, and corporate sustainability reports already exist and suggest that in the future accountants and auditors will be asked to examine corporate sustainability.

A number of interesting sustainability questions face finance, both within corporate setting and as an industry itself. Herman Daly reminds us that prudent capital investment within a firm is directed at the limiting factor on production: if we have parts, labor, facilities, but few customers, we invest in marketing; if we have customers, parts and facilities, but few workers, we invest in hiring, etc. When natural capital becomes the limiting factor, prudent investment must be directed towards natural resources. Within the financial industry itself, Socially Responsibility Investment (SRI) already represents a growing field. There is work to be done in developing criteria and measures for identifying and assessing socially responsible investments.

We need to see a sustainability program outlined for the banking (e.g., microfinance and microcredit—Grameen Bank of Bangladesh & Muhammad Yunus,) and insurance industries (look at the role the insurance industry is already playing in debates about global warning—they are our canary in the mine)

HR officers will be challenged to create sustainable, and healthy and safe, workplaces (workers, rather than consumers, often face the greatest risks with toxic products), especially throughout the entire supply chain and distribution channels of production. Developing, implementing, and defending policies that address the structural features of consumerism (work and spend). Operations and engineers will be asked to design and built sustainable buildings and factories.

The second direction I want to mention concerns the communities in which business operates. Sustainable communities provide business with both risks and opportunities. Think of how businesses were affected by community planning in the twentieth century. Road construction and the expansion of public utilities and other infrastructure into the suburbs provided the occasion for sprawl and urban decay. Businesses located within

urban centers fought to survive; mostly they died or moved. Small, indigenous and local firms competed with international businesses and "Big Box" retailers for both customers and workers. The construction and real estate industries, the automotive industry, and retail industries thrived in the last half of the twentieth century with the growth of sprawling suburbs. There are good reasons for thinking that this ever-expanding model of community development is coming to an end. Society will need to find ways to develop healthier and more livable communities than the ones characterized by sprawl and urban decay. Inevitably, some industries will benefit from these changes, some will not. I predict that in the sustainable future, we'll see a growing expectation that business should play a role in the development of sustainable communities.

Notes

1. See, for example, William McDonough and Michael Braungart, "The Next Industrial Revolution" *The Atlantic Monthly* (Oct. 1998), vol. 282, No. 4, 88-92.

2. I defend this assumption elsewhere—see "*Business, Ethics, Sustainability: Ethics for the Next Industrial Revolution*," forthcoming from Prentice Hall.

3. Perhaps the most widely used definition of sustainability comes from the United Nations' Brundtland Commission. The Brundtland Commission published its findings on economic development and the environment in 1987 in a book titled *Our Common Future*. This book offered what has become the standard definition of sustainable development: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

4. "Triple bottom line" is a phrase popularlized by John Elkington, *Cannibals with Forks: The Triple Bottom Line of 21st Century Business* Stony Creek, CT.: New Society Publishers, 1998.

5. These frameworks and models are described in Chapter Six of "*Business, Ethics, Sustainability: Ethics for the Next Industrial Revolution*", and include models developed in *Natural Capitalism* (Lovins, Lovins, and Hawken), The Next Industrial Revolution and Cradle-to-Cradle (McDonough and Braungart), as well as those associated with The Natural Step, and Industrial Ecology.

6. Herman Daly, "Sustainable Growth: An Impossibility Theorem," reprinted in *Valuing the Earth*, ed. Herman Daly and Kenneth Townsend (Boston: Massachusetts Institute of Technology Press, 1987), 267-268.

7. Ibid., 267.

8. Information about Herman Miller's long tradition of working towards sustainability can be found on the company's website: http://www.hermanmiller.com/. The United States Green Building Council also maintains a helpful website, with links to local affiliates, at: http://www.usgbc.org/.

9. "*Business, Ethics, Sustainability: Ethics for the Next Industrial Revolution*," chapter 7.

10. Presented at the conference on Business and Environmental Sustainability, Carlson School of Management, University of Minnesota, April 2005.

11. Juliet Shor, "Why do we Consume so Much?" in *Contemporary Issues in Business Ethics*, fifth edition, Joseph R. DesJardins and John McCall, eds., (Belmont, CA.: Wadsworth Publishing, 2005), 373-381.

12. Julian Simon, The Ultimate Resource (Princeton, NJ: Princeton Univ Press 1981).

13. Significant work on life-cycle management is being done by the United Nations Environment Progamme, http://www.uneptie.org/pc/sustain/lcinitiative/.

14. "Sustainability and dematerialization at Hewlett Packard," by David Hudson and Lynelle Preston in *Ants, Galileo, and Gandhi: Designing the Future of Business through Nature, Genius, and Compassion,* Sissel Waage, ed. (Sheffield, U.K, Greenleaf Publishing, 2003), 82-92.

15. A strong case can be made for the claim that world oil production already is at, or has passed, its peak. As early as the 1950s geophysicist M. King Hubbert formulated an hypothesis concerning a point of maximum production, known as Hubbert Peak, for any resource. Hubbert's hypothesis included the claim that the production peak occurred at the midpoint of the depletion of a resource. Many geologists and oil engineers believe that the world has already hit Hubbert's peak for oil production. A helpful source for pursuing this claim can be found at http://www.hubbertpeak.com/.

16. This parallel is explained in Michael Santoro, *"Profits and Principles: Global Capitalism and Human Rights in China,"* (Ithaca: Cornell University Press, 2000), 161, and is cited as well by Denis Arnold and Norman Bowie, "*Sweatshops and Respects for Persons,*" *Business Ethics Quarterly*, Vol. 13, No. 2 (2003), 221-242.